

**Notice of Allowability**

Application No.

10/518,528

Examiner

Mary C. Baran

Applicant(s)

NISHIHARA, YUICHI

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendments filed 12 June 2007.
2. ☒ The allowed claim(s) is/are 7-11 and 14.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:    .
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. This action is responsive to the Amendments filed 12 June 2007. Claims 7-11 and 14 are pending. Claims 7 and 9 are amended. Claims 1-6, 12, 13 and 15 are cancelled.

### ***Allowable Subject Matter***

2. Claims 7-11 and 14 are allowed.
3. The following is an examiner's statement of reasons for allowance:  
  
Claims 7 and 8 are allowable over the prior art because an expendable container capable of measuring a residual quantity of stored expendable, the expendable container further comprising: a non-volatile memory configured to store setting information on the reference voltage for residual quantity detection, the setting information on the reference voltage for residual quantity detection representing a relation between the reference voltage for residual quantity detection and piezoelectric element characteristic information indicative of a characteristic of the piezoelectric element, wherein the control module is capable of setting the reference voltage for residual quantity detection according to a given piece of the piezoelectric characteristic information and the setting information on the reference voltage for residual quantity detection is not found, taught or suggested in the prior art of record.

Claims 9-11 are allowable over the prior art because an expendable container capable of measuring a residual quantity of stored expendable, the expendable container comprising: a control module configured to control the charge and the discharge of the piezoelectric element by the detection signal generation circuit, wherein the control module controls has a test mode to control the detection signal generation circuit to measure an output voltage of the piezoelectric element after a preset time period has elapsed since a last charge or discharge operation of the piezoelectric element, and also to control the detection signal generation circuit to generate a failure detection signal according to a presence or absence of a specific peak where an output voltage wave of the piezoelectric element is higher than a reference voltage for function check is not found, taught or suggested in the prior art of record.

Claim 14 is allowable over the prior art because a computer readable recording medium, the medium storing a computer program for causing a computer to control an expendable container to set a reference voltage for measuring a residual quantity of stored expendable, the expendable container being capable of the measuring, the computer program causing the computer to carry out the functions of: generating a detection signal including information representing a cycle of a remaining vibration of the piezoelectric element after the discharge, in response to the confirmation; receiving the detection signal, and determining whether the residual quantity of the expendable is measurable, in response to the received detection signal; and setting a different voltage from the current setting to the reference voltage for residual quantity detection, and returning a process to the function, in response to the determination that the residual

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quantity of the expendable is immeasurable is not found, taught or suggested in the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary C. Baran whose telephone number is (571) 272-2211. The examiner can normally be reached on Monday to Friday 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eliseo Ramos-Feliciano can be reached on (571) 272-7925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

16 June 2007

  
6/25/07  
ELISEO RAMOS-FELICIANO  
SUPERVISORY PATENT EXAMINER